

NOTICE OF PROCESS CLARIFICATION (NOPC)

TO: DEVELOPMENT COMMUNITY

FROM: GISELLE RODRIGUEZ, PE – CITY ENGINEER

SUBJECT: WET DETENTION PONDS

DATE: 1/29/2015

Fayetteville is located in the inner coastal plain of North Carolina. The wet detention basin has been the stormwater management facility most used to satisfy the local quantity and quality requirements. The soil conditions and seasonal high water table elevations (SHWT) in our area are impacting, in many cases, the ability to maintain the design permanent pool elevation (PPE) in the ponds. Most of our ponds are performing as "leaky wet ponds". Said conditions urge designers to use liners to retain water and provide a healthy habitat for the vegetated shelf. These liners and wetland plants are costly. Plants continue to die as the ponds infiltrate.

Two "leaky wet ponds" with liners were examined and monitored by NC State – Water Resources Research Institute for over 15 months by collecting and analyzing samples in order to assess their performance and effectiveness. A comparison was made between the pollutant removal requirements and actual pollutant removal provided.

The results showed that the "leaky wet ponds" provided a substantial volume reduction. TSS and nutrient loading were significantly reduced. These ponds appear to work on par with standard ponds per requirements of the BMP Manual.

Results from this research were recently presented to NCDENR, and it was well received. Annette Lucas, from their office, referred to a recent change regarding the liner requirement when the PPE is above the SHWT. The requirement has been revised as follows: "the PPE must be no more than six inches below the SHWT. It is recognized as good engineering practice that the proposed PPE be at approximately the same elevation as the SHWT or above. If the PPE is designed to be more than six inches above the SHWT, the designer shall determine if a liner or compaction of the soils is necessary to maintain the permanent pool of water". In other words, it will be up to the designer and not a requirement by the City. The pond design shall not account for infiltration credits on wet ponds even when infiltration could affect its performance.

In cases where the PPE is design to be more than six inches above the SHWT and the designer determines that a liner is not necessary, design modifications shall be incorporated to avoid dead vegetation and mosquito infestation. Those modifications include:

- 1. Install a liner in the forebay following the specifications of the BMP Manual.
- 2. Specify drought tolerant plants approved by a landscape architect following the quantity/separation requirement per the BMP Manual. We are currently working with the research team on a recommended list of plants.

If you would like for us to consider a revision for a plan approved by our office, which could benefit from the changes indicated above, please contact Jessica Batten (jbatten@ci.fay.nc.us or 433-1657) to schedule a meeting and discuss your proposal. Do not hesitate to contact me if you have any questions.